Effects of Photoionization on Heavy-Ion-Fusion Chamber Transport

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Abstract

As an indirect-drive heavy-ion-fusion target is heated, its ends will emit soft X rays that should photoionize the surrounding background gas. For reasonable gas densities, the resulting plasma is expected to provide effective neutralization near the target both for the late-arriving part of “foot” beams and for the main heating pulses. The effects of this neutralization on beam transport in a fusion chamber are studied here using the electromagnetic particle-in-cell code LSP.